Practice: 568 - Trails and Walkways

Scenario: #1 - Reinforced Concrete Pathway

Scenario Description:

A pathway with a reinforced concrete surface treatment for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. Trails and Walkways may be applied as part of a resource management system to support travel ways for recreational activities such as walking, horseback riding, bicycling, cross country skiing, and hiking; access to recreation areas; safe, environmentally friendly pedestrian access for planting, cultivation and harvest operations; worker access for construction and maintenance operations. The trail and walkway surface treatment will stabilize the pathway and address the resource concerns of soil erosion and water quality degradation.

Before Situation:

Trails and Walkways can be applied on recreational, agricultural and non-agricultural lands where prepared paths, trails and walkways are needed for safe, effective and environmentally friendly movement of people or small walk behind equipment.

After Situation:

A trail or walkway is constructed 12 foot wide 300 foot long, 3600 square foot trail. All excavation, grading, and a reinforced concrete surfacing treatment is constructed as necessary to provide a smooth permanent travel pathway for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. The pathway consist of approximately 22 CY of excavation, 45 CY of reinforced concrete with a 45 CY sand foundation. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644), Access Control (472), and Heavy Use Area Protection (561).

Scenario Feature Measure: Area of Trail or Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600

Scenario Cost: $10,322.38 **Scenario Cost/Unit:** $2.87

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1141				1	
	1142				1	
Equipment/Installation						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.29	22	$50.38
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$72.16	3	$216.48
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$39.91	3	$119.73
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$181.40	45	$8,163.00
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$27.06	4	$108.24
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.92	4	$75.68
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.70	3	$83.10
Materials						
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	$27.31	45	$1,228.95
Mobilization						

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$276.82	1	$276.82

Practice: 568 - Trails and Walkways

Scenario: #2 - Rock/Gravel on Geotextile

Scenario Description:

A pathway with a rock and or gravel on a geotextile fabric foundation surface treatment for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. Trails and Walkways may be applied as part of a resource management system to support travel ways for recreational activities such as walking, horseback riding, bicycling, cross country skiing, and hiking; access to recreation areas; safe, environmentally friendly pedestrian access for planting, cultivation and harvest operations; worker access for construction and maintenance operations. The trail and walkway surface treatment will stabilize the pathway and address the resource concerns of soil erosion and water quality degradation.

Before Situation:

Trails and Walkways can be applied on recreational, agricultural and non-agricultural lands where prepared paths, trails and walkways are needed for safe, effective and environmentally friendly movement of people or small walk behind equipment.

After Situation:

A trail or walkway is constructed 12 foot wide 300 foot long, 3600 square foot trail. All excavation, grading, and a rock and or gravel on a geotextile fabric foundation surfacing treatment is constructed as necessary to provide a smooth permanent travel pathway for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. The pathway consist of approximately 22 CY of excavation, 45 CY of gravel on 400 SY of geotextile. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644), Access Control (472), and Heavy Use Area Protection (561).

Scenario Feature Measure: Area of Trail or Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600

Scenario Cost: $3,080.03 **Scenario Cost/Unit:** $0.86

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1142				1	
	1141				1	
Equipment/Installation						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.29	22	$50.38
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.26	400	$904.00
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$39.91	3	$119.73
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$72.16	3	$216.48
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$27.06	4	$108.24
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.92	4	$75.68
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.70	3	$83.10
Materials						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$27.68	45	$1,245.60
Mobilization						

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$276.82	1	$276.82

Practice: 568 - Trails and Walkways

Scenario: #3 - Rock/Gravel in GeoCell on Geotextile

Scenario Description:

A pathway with a rock and or gravel in a cellular containment grid on a geotextile fabric foundation surface treatment for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. Trails and Walkways may be applied as part of a resource management system to support travel ways for recreational activities such as walking, horseback riding, bicycling, cross country skiing, and hiking; access to recreation areas; safe, environmentally friendly pedestrian access for planting, cultivation and harvest operations; worker access for construction and maintenance operations. The trail and walkway surface treatment will stabilize the pathway and address the resource concerns of soil erosion and water quality degradation.

Before Situation:

Trails and Walkways can be applied on recreational, agricultural and non-agricultural lands where prepared paths, trails and walkways are needed for safe, effective and environmentally friendly movement of people or small walk behind equipment.

After Situation:

A trail or walkway is constructed 12 foot wide 300 foot long, 3600 square foot trail. All excavation, grading, and a rock and or gravel in a cellular containment grid on a geotextile fabric foundation surfacing treatment is constructed as necessary to provide a smooth permanent travel pathway for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. The pathway consist of approximately 22 CY of excavation, 45 CY of gravel in 400 SY of 4" geocell on geotextile. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644), Access Control (472), and Heavy Use Area Protection (561).

Scenario Feature Measure: Area of Trail or Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600

Scenario Cost: $12,432.03 **Scenario Cost/Unit:** $3.45

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1141				1	
	1142				1	
Equipment/Installation						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.29	22	$50.38
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$72.16	3	$216.48
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$39.91	3	$119.73
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.26	400	$904.00
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$27.06	4	$108.24
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.92	4	$75.68
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12”, Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.70	3	$83.10
Materials						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$27.68	45	$1,245.60

Materials

GeoCell, 4"	1054	Polymer 3-D cellular grid 4" deep that is filled with stone or earth. Includes materials, labor and equipment for the geocell only, does not include backfill.	Square Yard	$23.38	400	$9,352.00

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$276.82	1	$276.82

Practice: 568 - Trails and Walkways

Scenario: #4 - Fly Ash on Geotextile

Scenario Description:

A pathway with Fly Ash on a geotextile fabric foundation surface treatment for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. Trails and Walkways may be applied as part of a resource management system to support travel ways for recreational activities such as walking, horseback riding, bicycling, cross country skiing, and hiking; access to recreation areas; safe, environmentally friendly pedestrian access for planting, cultivation and harvest operations; worker access for construction and maintenance operations. The trail and walkway surface treatment will stabilize the pathway and address the resource concerns of soil erosion and water quality degradation.

Before Situation:

Trails and Walkways can be applied on recreational, agricultural and non-agricultural lands where prepared paths, trails and walkways are needed for safe, effective and environmentally friendly movement of people or small walk behind equipment.

After Situation:

A trail or walkway is constructed 12 foot wide 300 foot long, 3600 square foot trail. All excavation, grading, and a Fly Ash on a geotextile fabric foundation surfacing treatment is constructed as necessary to provide a smooth permanent travel pathway for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. The pathway consist of approximately 45 CY of Fly Ash on approximately 400 square yards of geotextile fabric foundation. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644), Access Control (472), and Heavy Use Area Protection (561).

Scenario Feature Measure: Area of Trail or Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600

Scenario Cost: $2,985.47 **Scenario Cost/Unit:** $0.83

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1142				1	
	1144				1	
	1141				1	
Equipment/Installation						
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.26	400	$904.00
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.29	22	$50.38
Dozer, 140 HP	927	Track mounted Dozer with horsepower range of 125 to 160. Equipment and power unit costs. Labor not included.	Hour	$133.49	3	$400.47
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$39.91	3	$119.73
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.92	4	$75.68
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.70	3	$83.10
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$27.06	4	$108.24
Materials						
Fly Ash, BAB	52	Fly Ash, Bottom Ash Blend, includes material and delivery	Cubic yard	$21.49	45	$967.05
Mobilization						

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$276.82	1	$276.82

Practice: 568 - Trails and Walkways

Scenario: #5 - Bituminous Concrete Pavement

Scenario Description:

A pathway with a bituminous concrete pavement on aggregate gravel foundation surface treatment for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. Trails and Walkways may be applied as part of a resource management system to support travel ways for recreational activities such as walking, horseback riding, bicycling, cross country skiing, and hiking; access to recreation areas; safe, environmentally friendly pedestrian access for planting, cultivation and harvest operations; worker access for construction and maintenance operations. The trail and walkway surface treatment will stabilize the pathway and address the resource concerns of soil erosion and water quality degradation.

Before Situation:

Trails and Walkways can be applied on recreational, agricultural and non-agricultural lands where prepared paths, trails and walkways are needed for safe, effective and environmentally friendly movement of people or small walk behind equipment.

After Situation:

A trail or walkway is constructed 12 foot wide 300 foot long, 3600 square foot trail. All excavation, grading, and a bituminous concrete pavement on aggregate gravel foundation surfacing treatment is constructed as necessary to provide a smooth permanent travel pathway for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. The pathway consist of approximately 3600 SFof Bituminous Concrete Pavement on approximately 45 CY gravel foundation. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644), Access Control (472), and Heavy Use Area Protection (561).

Scenario Feature Measure: Area of Trail or Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600

Scenario Cost: $9,704.02 **Scenario Cost/Unit:** $2.70

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1144				1	
	1142				1	
	1141				1	
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$39.91	3	$119.73
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.29	22	$50.38
Dozer, 140 HP	927	Track mounted Dozer with horsepower range of 125 to 160. Equipment and power unit costs. Labor not included.	Hour	$133.49	3	$400.47
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.70	3	$83.10
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$27.06	4	$108.24
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.92	4	$75.68
Materials						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$27.68	45	$1,245.60
Asphalt, pavement	1867	Bituminous Concrete,includes materials, equipment and labor for 4" layer, base not included.	Square Foot	$2.04	3600	$7,344.00
Mobilization						

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$276.82	1	$276.82

Practice: 568 - Trails and Walkways

Scenario: #6 - Wood Chips

Scenario Description:

A pathway with a wood chip surface treatment for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. Trails and Walkways may be applied as part of a resource management system to support travel ways for recreational activities such as walking, horseback riding, bicycling, cross country skiing, and hiking; access to recreation areas; safe, environmentally friendly pedestrian access for planting, cultivation and harvest operations; worker access for construction and maintenance operations. The trail and walkway surface treatment will stabilize the pathway and address the resource concerns of soil erosion and water quality degradation.

Before Situation:

Trails and Walkways can be applied on recreational, agricultural and non-agricultural lands where prepared paths, trails and walkways are needed for safe, effective and environmentally friendly movement of people or small walk behind equipment.

After Situation:

A trail or walkway is constructed 12 foot wide 300 foot long, 3600 square foot trail. All excavation, grading, and a wood chip surfacing treatment is constructed as necessary to provide a smooth permanent travel pathway for pedestrian, equestrian, bicycle, other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment. The pathway consist of approximately 22 CY of excavation, 45 CY of wood chips on a natural foundation. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644), Access Control (472), and Heavy Use Area Protection (561).

Scenario Feature Measure: Area of Trail or Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600

Scenario Cost: $1,778.11 **Scenario Cost/Unit:** $0.49

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1142				1	
Equipment/Installation						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.29	22	$50.38
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$72.16	3	$216.48
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$39.91	3	$119.73
Aggregate, Wood Chips	1098	Includes materials, equipment and labor	Cubic yard	$21.81	45	$981.45
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.92	4	$75.68
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.19	3	$57.57
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$276.82	1	$276.82